

WHAT IS CLAIMED IS:

1. A database system built by distributing one or more databases and one or more first servers which search the databases for real data on a network, comprising:

metadata management means for collecting metadata which pertain to real data stored in the one or more databases from the one or more first servers, and managing the collected metadata; and

metadata retrieval means for extracting metadata which matches a request from a user terminal connected to the network by search in response to the request.

2. A system according to claim 1, wherein said metadata management means and metadata retrieval means are located in one or more second servers different from the first servers.

3. A system according to claim 1, wherein the metadata contains at least information indicating a location of the database or the first server, and contents of real data in the database.

4. A system according to claim 1, wherein the user terminal comprises:

means for inputting a retrieval request of the metadata;

means for inputting a retrieval condition upon retrieving real data on the database using a retrieval result of the metadata supplied from said metadata retrieval means; and

means for transferring the input retrieval condition to the first server indicated by the extracted metadata as a retrieval request.

5. A system according to claim 4, further comprising means for providing a form for inputting the retrieval condition, which form can be commonly used irrespective of the retrieval result of said metadata retrieval means.

6. A system according to claim 4, wherein the first server comprises means for converting the retrieval request to the database transferred from the user terminal into a format concordant with the database to be accessed.

7. A system according to claim 2, wherein the first server comprises metadata saving means for creating and saving metadata that pertains to the database managed by that first server, and

the second server comprises means for acquiring corresponding metadata when data stored in said metadata saving means has been updated.

8. A system according to claim 2, wherein the first server comprises metadata saving means for creating and saving metadata that pertains to the database managed by that first server, and

the second server comprises means for acquiring data stored in said metadata saving means at a predetermined time interval.

9. A system according to claim 1, wherein the database is a relational database,

said system further comprises:

table extraction means for extracting one table including columns that store data to be retrieved from a plurality of tables in the database;

column exclusion means for excluding columns of the table extracted by said table extraction means and columns on other tables which store the same data contents as data contents of the columns on the extracted table from columns to be extracted in subsequent processing; and

table join means for joining the tables extracted in turn by said table extraction means when the processing of said table extraction means and the processing of said column exclusion means have been repeated until all the columns including data to be retrieved are analyzed, and

the real data is retrieved from the tables joined by said table join means.

10. A method of data retrieval from a database comprising the steps of:

collecting metadata that pertain to real data stored in databases distributed on a network by a second server via first servers distributed on the network, and saving the collected metadata;

extracting metadata that matches a request by search of the collected metadata;

inputting a retrieval condition for the database on the basis of a retrieval result of the metadata;

issuing a retrieval request of the real data to the first server indicated by the extracted metadata; and

retrieving, by the first server, the real data from the corresponding database in accordance with the retrieval request.

11. A computer-readable recording medium recording a program for making a computer implement, in a database system built by distributing on a network one or more user terminals, one or more databases, one or more first servers for searching the databases for real data, and one or more second servers for collecting metadata which pertain to real data stored in the one or more databases from the one or more first servers and managing the collected metadata:

a function of collecting the metadata of the distributed databases by the second server via the first servers;

a function of extracting metadata which matches a retrieval request from a user by search of the collected metadata in response to the retrieval request;

a function of inputting a retrieval condition for the databases at the user terminal on the basis of a retrieval result of the metadata, and issuing a

retrieval request of the real data to the first server indicated by the extracted metadata; and

a function of retrieving the real data by the first server in accordance with the retrieval request.

12. A computer-readable recording medium recording a program for making a computer implement, in a database system built by distributing on a network one or more databases, one or more first servers for searching the databases for real data, and one or more second servers different from the first servers:

a function of collecting and managing the metadata by the second server from the one or more first servers by acquiring metadata by the second server when the metadata which is created by the first server and pertains to the database managed by that first server has been updated.

13. A computer-readable recording medium recording a program for making a computer implement, in a database system built by distributing on a network one or more databases, one or more first servers for searching the databases for real data, and one or more second servers different from the first servers:

a function of collecting and managing the metadata by the second server from the one or more first servers by acquiring metadata which is created by the first server and pertains to the database managed by that first server at a predetermined time interval.

14. A computer-readable recording medium recording a program for making a computer implement, in a database system built by distributing on a network one or more user terminals, one or more databases, one or more first servers for searching the databases for real data, and one or more second servers for collecting metadata which pertain to real data stored in the one or more databases from the one or more first servers and managing the collected metadata:

a function of extracting metadata which matches a request from the user terminal from the second server by search in response to the request;

a function of inputting a retrieval condition for retrieving real data from the database using a retrieval result of the metadata; and

a function of transferring the input retrieval condition to the first server indicated by the extracted metadata as a retrieval request.

15. A computer-readable recording medium recording a program for making a computer implement, in a database system built by distributing on a network one or more databases, and one or more first servers for searching the databases for real data:

a function of creating and saving by the first server metadata which pertains to the database managed by that first server, and providing the metadata in response to an external request;

a function of converting a retrieval request sent from a user terminal connected to the network into a format which is concordant with the database to be accessed; and

a function of retrieving the real data from the database in response to the converted retrieval request.

16. A database system which searches a plurality of tables joined by a relational database, comprising:

table extraction means for extracting one table including columns that store data to be retrieved from a plurality of tables;

column exclusion means for excluding columns of the table extracted by said table extraction means and columns on other tables which store the same data contents as data contents of the columns on the extracted table from columns to be extracted in subsequent processing; and

table join means for joining the tables extracted in turn by said table extraction means when the processing of said table extraction means and the processing of said column exclusion means have been repeated until all the columns including data to be retrieved are analyzed.

17. A system according to claim 16, wherein said table extraction means extracts one table including a largest number of columns which store data to be retrieved from the plurality of tables.

18. A system according to claim 16, further comprising metadata management means for collecting and managing metadata which pertain to joining of the plurality of tables, and wherein said table extraction means extracts the table on the basis of the metadata stored in said metadata management means.

19. A system according to claim 16, further comprising retrieval means for retrieving objects in accordance with a retrieval key, and wherein data is retrieved from the tables which are extracted in turn and joined by said table extraction means.

20. A method of data retrieval from a database, comprising the step of repeating processing for extracting a table and processing for excluding columns including identical data upon search by joining a plurality of tables by a relational database in such a manner that one table including columns that store data to be retrieved is extracted from the plurality of tables, columns which store the same data contents as data contents of columns on the extracted table of other tables are excluded, and another table is extracted from the remaining tables, and joining one or more tables extracted in turn.

21. A method according to claim 20, wherein upon extracting one table from the plurality of tables, one table including a largest number of columns that store data to be retrieved is extracted.



22. A method according to claim 20, wherein data is retrieved from the one or more joined tables.

23. A computer-readable recording medium recording a program for making a computer implement:

means for extracting one table including a largest number of columns that store data to be retrieved from a plurality of tables upon search by joining a plurality of tables by a relational database;

means for excluding columns of the extracted table and columns on other tables which store the same data contents as data contents of the columns on the extracted table from columns to be extracted in subsequent processing; and

means for joining the tables extracted in turn when the processing of said two means have been repeated until all the columns including data to be retrieved are analyzed.

24. A medium according to claim 23, wherein said program makes the computer further implement retrieval means for retrieving objects in accordance with a retrieval key from the tables extracted and joined by said table extraction means.